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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application Of:	)	
	)	
Kenneth MARGON	)	Group Art Unit: 2665
	)	
Application Number: 09/482,054	)	Examiner: Steven H. D. NGUYEN
	)	
Filed: January 13, 2000	)	Confirmation No. 6497
	)	
For: SYSTEM AND METHOD FOR SINGLE-POINT TO FIXED-MULTIPOINT DATA COMMUNICATION	)	

APPEAL BRIEF

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APPEAL BRIEF

In response to the Office Action mailed September 20, 2002, finally rejecting pending claims 1-61, 64-71, 74-77, 80, and 81, Appellant respectfully requests that the Board of Patent Appeals and Interferences reconsider and withdraw the rejections of record, and allow the pending claims, which are attached hereto as Appendix A.

I. REAL PARTY IN INTEREST

The real party in interest is Cape Range Wireless, Inc. (formerly named Arcadian Wireless, Inc.), the Assignee of the above-referenced application.

II. RELATED APPEALS AND INTERFERENCES

To the best of Appellant's knowledge, there are no related Appeals or Interferences.

III. STATUS OF CLAIMS

Claims 1-61, 64-71, 74-77, 80, and 81 are pending in this application. Claims 62, 63, 72, 73, 78, and 79 have been canceled. The rejections of 1-61, 64-71, 74-77, 80, and 81 are appealed.

IV. STATUS OF AMENDMENTS

No amendments to the claims have been filed subsequent to the final rejection dated September 20, 2002.

V. SUMMARY OF INVENTION

The present invention is a data communication system having a base station and a plurality of remote stations. In operation, the base station transmits data packets to the remote stations via a forward channel and the remote stations transmit data packets to the base station via a reverse channel. Before transmitting on the reverse channel, each of the remote stations listens to (monitors) the reverse channel to ascertain whether any other remote station is transmitting. The remote stations monitor the reverse channel in sequential order at exclusively assigned times during a clear channel assessment interval. A remote station transmits data only when it determines that the reverse channel is clear.

The foregoing overview is described in detail with reference to the figures and specification as follows. Referring to Fig. 1, the present invention comprises a base station 102 and a plurality of remote stations 104. 09/482,054 Specification, p. 5, ll. 19-23. Communication from and to base station 102 and each of the remote stations 104 is provided over a forward channel 106 and a reverse channel 108, respectively. *Id.* The communication between base station 102 and each remote station 104 can be conducted in half- or full-duplex embodiments. *Id.* at p. 5, ll. 30-31; Fig. 2A (half-duplex) and Fig. 2B (full-duplex). Upon the expiration of the time allotted for forward channel 106, each remote station 104 enters in a clear channel assessment interval 202 phase and listens to reverse channel 108. *Id.* at p. 7, ll. 7-10. During this time, each remote station 104 listens to the reverse channel 108 to ascertain whether other remote stations 104 are transmitting. *Id.*

In one embodiment of the invention, the clear channel assessment interval 202 is divided into periods of time, *i.e.*, dwell times (DT), each of which is assigned to one of a plurality of remote stations 104. *Id.* at p. 8, l. 29 to p. 9, l. 28. Referring to Fig. 3, there can be "n" DT periods (*e.g.*, DT_1 302, DT_2 304, and DT_n 306). *Id.* In general, each remote station 104 is assigned a particular DT period and listening occurs in a serial manner. *Id.* at p. 9, ll. 1-2. During the clear channel assessment interval 202, each remote station 104 waits until its assigned DT to listen to the reverse channel 108, and if during its DT the channel is clear, that station can transmit data. *Id.* at p. 9, ll. 1-5. For example, a first remote station with DT_1 302 listens first to the reverse channel 108. *Id.* at p. 9, ll. 5-7. After the expiration of DT_1 302, a second remote station listens to the reverse channel 108 for the period of DT_2 304. *Id.* at p. 9, ll. 7-8. An "n^{th}" remote station waits until the beginning of DT_n 306 to listen to the reverse channel 108 for the DT period. *Id.* at p. 9, ll. 8-10. A remote station that has data to send to base station 102 does so only when the remote station has listened to the reverse channel 108, at its designated DT, and has ascertained that no other remote station 104 is transmitting (*i.e.*, a clear channel exists). *Id.* at p. 9, ll. 10-12.

Each remote station 104 thereby determines whether or not to transmit data (by monitoring the reverse channel 108) without requiring the base station 102 to broker or provide access to the reverse channel 108 among remote stations 104. *Id.* at p. 7, ll. 20-24.

VI. ISSUES

There are three issues on appeal:

(a) Whether claims 1-3, 5-7, 19, 24-25, 32-35, 40, 46, 50, 55-57, 61, 66, 68-71, 74, 76-77, and 80 are patentable under 35 U.S.C. § 103(a) over U.S. Patent No. 5,682,604 to Kashi *et al.* ("Kashi") in view of U.S. Patent No. 5,012,469 to Sardana.

(b) Whether claims 4, 8-18, 23, 26-31, 36-39, 41-45, 49-54, 58-60, 65, 67, 75, and 81 are patentable under 35 U.S.C. § 103(a) over Kashi and Sardana in further view of U.S. Patent No. 5,677,909 to Heide.

(c) Whether claims 20-22, 47-48, and 64 are patentable under 35 U.S.C. § 103(a) over Kashi and Sardana in further view of U.S. Patent No. 5,299,198 to Kay.

VII. GROUPING OF CLAIMS

Claims 2, 3, 5-7, 19, 24-25, 32-35, 40, 46, 50, 55-57, 61, 66, 68-71, 74, 76-77, and 80 stand with claim 1. Claim 41 stands with claim 4. Claims 9, 36, and 60 stand with claim 8. Claims 11 and 37 stand with claim 10. Claims 13, 14, 38, 39, 58, and 59 stand with claim 12. Claims 16-18 and 42-45 stand with claim 15. Claims 31, 53, and 54 stand with claim 30. Claims 27-29, 51, 52, 67, 75, and 81 stand with claim 26. Claims 49 and 65 stand with claim 23. Claims 21, 22, 47, 48, and 64 stand with claim 20. The reasons why each of these groups of claims is separately patentable are presented in the Argument section below.

VIII. ARGUMENT

The rejections of claims 1-61, 64-71, 74-77, 80, and 81 all require modification of Kashi in view of Sardana and in the case of claims 4, 8-18, 23, 26-31, 36-39, 41-45, 49-54, 58-60, 65, 67, 75, and 81, further modification in view of Heidi, and in the case of claims 20-22, 47-48, and 64, further modification in view of Kay. These various "combinations" are improper because there is no motivation to combine together the various elements from these different sources to yield the claimed invention. Moreover, inclusion of a reservation protocol as taught by either Sardana or Heidi is counterintuitive because Kashi, which is the primary reference relied upon in the rejections, teaches away from such an inclusion. Furthermore, inclusion of a reservation

protocol would change the principle of operation of Kashi. Appellant respectfully submits that even if the various combinations were proper, the cited prior art fails to teach or suggest all claim limitations, particularly "said clear channel assessment interval is partitioned into periods of time and each of said periods of time is assigned to one of said plurality of remote stations" as recited or similarly recited in all the independent claims (*i.e.*, claims 1, 32, 55, 68, 69, and 76).

A. Summary Of The Rejections And The Prior Art Relied Upon In Rejecting The Pending Claims

1. The Rejection Of Claims 1-3, 5-7, 19, 24-25, 32-35, 40, 46, 50, 55-57, 61, 66, 68-71, 74, 76-77, And 80 Over Kashi In View Of Sardana

The final rejection dated September 20, 2002, ("the Office Action") rejects pending claims 1-3, 5-7, 19, 24-25, 32-35, 40, 46, 50, 55-57, 61, 66, 68-71, 74, 76-77, and 80 as being unpatentable under 35 U.S.C. § 103(a) over Kashi in view of Sardana.

The Office Action alleges that Kashi discloses all limitations recited in the rejected claims except for the limitation(s) directed to a "method and system for dividing a clear access interval into a plurality of time slot[s] wherein each time slot is assigned to each mobile unit." Office Action, page 3. In an attempt to cure such a deficiency, the Office Action introduces Sardana as allegedly disclosing a "system which [includes an] upstream and downstream channel wherein the downstream channel has a plurality of reservation mini-slot for transmitting [a] signal to the base station wherein each mobile is assigned a mini-slot and the number of mini-slots are equal to the number of mobile stations." *Id.* The Office Action then asserts that "it would have been obvious to one of ordinary skill in the art at the time [that] the invention was made to apply a method and system for dividing a reservation channel into a plurality of mini-slots wherein each mini-slot assigned to each mobile unit and the number of mini-slots are equal to the number of mobile units as disclosed by Sardana's system and method into Kashi's system

and method." *Id.* at page 4. "The motivation would have been to reduce [collisions] and improve the throughput of the system." *Id.*

2. The Rejection Of Claims 4, 8-18, 23, 26-31, 36-39, 41-45, 49-54, 58-60, 65, 67, 75, And 81 Over Kashi In View Of Sardana, And Further In View Of Heidi

Recognizing the deficiencies of the combination of Kashi and Sardana with respect to claims 4, 8-18, 23, 26-31, 36-39, 41-45, 49-54, 58-60, 65, 67, 75, and 81, the Office Action additionally relies on Heidi or Official Notice to reject these claims.

As applied to claims 4 and 41, the Office Action acknowledges that "Kashi and Sardana do not fully disclose the data packet including a digitized voice and data." *Id.* The Office Action attempts to cure this additional deficiency by taking Official Notice "that both the concept and the advantages of providing the data packet including digitized voice and data are well known and expected in the art." *Id.* The Examiner therefore contends that "it would have been obvious to one of ordinary skill in the art at the time [that] the invention was made to include the data packets including the digitized voice and data for transmitting between the base and remote station." *Id.* "The motivation would have been to integrate a wireless network with a wireline network such as Internet and turn the Internet into a reliable telecommunication network." *Id.*

As applied to claims 8-11, 36, 37, and 60, the Office Action acknowledges that "Kashi and Sardana do not fully disclose an address is broadcast, a semi-broadcast, IP." *Id.* Official notice is taken that "both the concept and the advantages of providing the address for a device is well known and expected in the art." *Id.* Therefore, the Examiner contends "it would have been obvious to one of ordinary skill in the art at the time [that] the invention was made to assign an address to a remote unit." *Id.*

As applied to claims 12-14, 38, 39, 58, and 59, the Office Action acknowledges that

"Kashi and Sardana do not fully disclose a method of assigning a first remote station address from a first set of addresses in a first zone 'cell or sector' and a second remote station address from a second set of addresses in a second zone 'cell or sector'; wherein set of addresses form an Internet subnetwork." *Id.* at page 5. Official notice is taken by the Examiner that "both the concept and the advantages of assigning a different address to each remote to [a] different zone having an Internet subnetwork are well known and expected in the art." *Id.* Therefore, the Examiner contends that "it would have been obvious to one of ordinary skill in the art at the time [that] the invention was made to assign a different address to each remote to [a] different zone having an Internet subnetwork." *Id.* The motivation would have been "to easily locate the remote station in the zones." *Id.*

As applied to claims 15-18 and 42-45, the Office Action asserts that "Kashi and Sardana discloses each remote station having a priority parameter for accessing a clear channel interval at the predetermined time in a round robin fashion and an equal predetermined time for a clear channel assessment interval." *Id.* However, the Office Action acknowledges the "Kashi does not disclose a clear channel [interval] including a predetermined time slot and each mobile monitor [the] clear channel interval during its assigned time slot." *Id.* In an attempt to cure such a deficiency, Heidi is introduced as teaching "a wireless system [having] a base station and remote stations including a forward channel . . ., a reservation channel 'upward period' and [a] clear assessment channel 'request period'." *Id.* The Examiner then contends that since "Kashi discloses a plurality of time slots for remote station[s] responding to [a] global request," "it would have been obvious to one of ordinary skill in the art at the time [that] the invention was made to apply a superframe which includes a downward period, upward period and request period for accessing upward period for transmitting a data packet as disclosed [by] Heidi into

Kashi's and Sardana's wireless communication system." *Id.* The Office Action then asserts that even "without, Heidi's teaching, one of ordinary skill in the art would know how to divide a frame into forward, a [reverse] channel and clear assessment channel interval into a time slot for assigning to the remote station" as "[t]his method is well known in the art." *Id.* at page 6.

As applied to claims 30, 31, 53, and 54, the Office Action acknowledges that "Kashi and Sardana do not fully disclose a method of transmitting a control packet for synchronizing the base station and remote station." *Id.* Official notice is taken that "both the concept and the advantages of assigning a different address to each remote to different zone having an Internet subnetwork are well known and expected in the art." *Id.* Therefore, "it would have been obvious to one of ordinary skill in the art at the time [that] the invention was made to synchronize the base station and the remote station." *Id.* The motivation would have been "to adjust a clock of the remote station to coincide with the base station." *Id.*

As applied to claims 26-29, 51, 52, 67, 75, and 81, the Office Action recognizes that "Kashi and Sardana do not fully disclose a wireless communication system including a half, full duplex, and the signals are transmitted via electrical or optical medium." *Id.* Official Notice is taken that "both the concept and the advantages of forward and [reverse] channel being half or full duplex is well known and expected in the art." *Id.*

As applied to claims 23, 49, and 65, the Office Action recognizes that "Kashi does not disclose a system a system being used in an IPMA environment." *Id.* Official Notice is taken that "both the concept and the advantages of using Internet protocol in a wireless system is well known and expected in the art." *Id.*

3. The Rejection Of Claims 20-22, 47, 48, And 64 Over Kashi In View Of Sardana, And Further In View Of Kay

Recognizing the deficiencies of the combination of Kashi and Sardana with respect to

claims 20-22, 47, 48, and 64, the Office Action additionally relies on Kay to reject these claims.

The Office Action acknowledges that "Kashi and Sardana do not fully disclose a guard time among the forward, [reverse] and clear assessment channel interval. *Id.* at p. 7. In an attempt to cure such a deficiency, Kay is introduced as disclosing "a guard time for the channels." *Id.* Therefore, the Office Action contends that "it would have been obvious to one of ordinary skill in the art at the time [that] the invention was made to apply a guard time in the position such as beginning or ending of forward, [reverse] and clear assessment channel interval as disclosed by Kay into Kashi's and Sardana's wireless communication." *Id.* "Since, a method of inserting a guard time in the positions such as a beginning or ending interval is well known in the art." *Id.* "So, without Kay's teaching one of ordinary skill in the art would [know] how to insert a guard time to prevent interference between the intervals." *Id.*

4. Kashi

Kashi discloses a communications system having a base station 10 and a number of remote terminal units (RTUs), *e.g.*, RTUs 11, 12, and 13 (numbered RTU1, RTU2, and RTU3). *See* Kashi Fig. 2 and col. 3, ll. 44-52. Central base station 10 and RTUs 11, 12, and 13 transmit and receive on a channel frequency (frequency 1). *Id.* In order for a RTU in Kashi's system to determine that the channel is clear, and hence can transmit information on the channel, a priority algorithm (as depicted in Fig. 5) employing predetermined RTU priority parameters (ID numbers) is implemented. *Id.* at abstract and col. 4, ll. 38-39. In operation, when one of the RTUs transmits, it includes its ID number in the start of its transmission. *Id.* at col. 4, ll. 39-40. All other non-transmitting RTUs listen and extract the ID number of the transmitting RTU. *Id.* at col. 4, ll. 56-58. Each non-transmitting RTU compares the ID number of the transmitting RTU to its own predetermined ID number to calculate a delay period in which the RTU is to wait

before again accessing the channel (*i.e.*, determining whether the channel is clear) at a later time. *Id.* at col. 4, ll. 59-63. After the expiration of its calculated delay period, each RTU listens to the channel and if it is clear, begins transmitting data (along with its ID number). *Id.* at col. 5, ll. 60-63. If the channel is still not clear, the RTU repeats the above calculation and listening steps. *See Id.* at Fig. 5.

Kashi's RTUs monitor and assess the reverse channel at varying unassigned times, a portion of which are employed by more than one RTU and are all calculated based on a priority number of the RTU transmitting that cycle. *See Id.* at column 3, lines 28-34 and Figs. 6 and 7. As such, the time at which channel monitoring and assessment begins at a Kashi RTU is at least dependent on or determined by the expiration, *i.e.*, duration, of the central unit transmission and the priority values received from other RTUs attempting to transmit.

5. Sardana

Sardana discloses a reservation protocol having a reservation period consisting of a number of reservation minislots, each of which is assigned to a particular station of a network. Sardana, col. 3, ll. 5-10. Each station is required to transmit a reservation request during its allocated reservation minislot in order to reserve time for the transmission of information during a later communication interval. *Id.* at col. 3, ll. 11-13. Sardana requires that a base station have a global queue and extra processing capability in order to handle these reservation requests and the allocation of reserved transmission time intervals for the stations. *Id.* at col. 3, ll. 13-17. Each and every station receives requesting information from other stations and maintains such a global queue. *Id.* at col. 3, ll. 17-24.

6. Heidi

Heide discloses an optical infrared communication system comprising a central station

12 and a plurality of remote stations 14 implementing a reservation-based polling protocol with priority-level polling. *See* Heide, col. 5, ll. 6-11 and col. 10, ll. 25-27. Referring to Fig. 3, a repeating frame structure (superframe) is used to exchange information between the central station 12 and the remote stations 14. *Id.* at col. 6, ll. 52-55. The superframe comprises a request period 50 followed by a data period 51. *Id.* at col. 7, ll. 13-14. The request period 50 is a field used by the remote stations 14 to request transmission time in the data period 51 (as brokered by the central station 12) and the data period 51 is used to exchange data between the central station 12 and the remote stations 14. *Id.* at col. 6, ll. 57-61. Referring to Fig. 6, each remote station 14 has a preassigned time slot TS (such as TS_1 54, TS_2 55, or TS_3 56 for the first three stations) in the request period 50 to issue a reserved slot request RR frame (*e.g.*, RR_1 54 or RR_3 56 for the first or third station, respectively) if it has data to transmit on the channel. *Id.* at col. 9, ll. 15-34. After every station has been given a chance to make a reservation, the central station 12 enters an explicit polling period ("upward period" in Fig. 6) of data period 51 in which the remote stations 14 that have reserved transmission time are individually polled by the central station 12 via a poll frame P (*e.g.*, P_1 60 and P_3 64 for the first or third station, respectively). *Id.* at col. 9, l. 65 to col. 10, l. 9. Immediately upon receiving a poll frame that station responds with its data packet DATA (*e.g.*, $DATA_1$ 62 or $DATA_2$ 66 for the first or third station, respectively). *Id.* A broadcast period follows the polling period in the data period 51 for the transmission of system information from the central station 12 to the remote stations 14. *Id.* at col. 11, ll. 5-16. The data period 51 is completed by the inclusion of a downward period in which the central station 12 transmits data to specific remote stations 14. *Id.* at col. 11, ll. 29-40.

7. Kay

Kay is directed to a system for multiplexing plural voice traffic channels on a single

carrier using a TDMA protocol. *See* Kay, abstract. Kay is a secondary reference and relied on for its teaching of guard times, G, in forward and reverse traffic channel formats. *Id.* at col. 10, ll. 23-27 and Fig. 9.

B. The Modification Of Kashi To Include Sardana's Reservation Protocol Is Improper

This rejection fails to satisfy the Examiner's burden to establish a *prima facie* case of obviousness as there is no objective evidence of a motivation to modify provided that would lead one of ordinary skill in the art to include Sardana's reservation protocol into Kashi's system. Furthermore, the Examiner's hypothesized motivation to support this modification is not sufficient because the basis for this hypothesis is fundamentally unsound. Appellant submits that Kashi clearly teaches away from the inclusion of a reservation protocol. Moreover, the inclusion of a reservation protocol would change the principle of operation of Kashi.

In order to support a § 103 rejection based on a combination of references, the Examiner must provide a sufficient motivation for making the relevant combinations. *See* M.P.E.P. §§ 2142 and 2143.01; *see also In re Rouffet*, 149 F.3d 1350, 1355, 47 USPQ2d 1453, 1456 (Fed. Cir. 1998) ("When a rejection depends on a combination of prior art references, there must be some teaching, suggestion, or motivation to combine the references."). It is well-settled that an Examiner can "satisfy [the burden under 35 U.S.C. § 103 to establish a *prima facie* case of obviousness] only by showing some *objective teaching* in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references." *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988) (emphasis added); *see also In re Lee*, 277 F.3d 1338, 1344, 61 USPQ2d 1430, 1434 (Fed. Cir 2002) ("'deficiencies of the cited references cannot be remedied by the Board's general conclusions about what is 'basic knowledge' or 'common sense'"). As with rejections

based on the modification of a single reference, "[b]road conclusory statements regarding the teaching of multiple references, standing alone, are not 'evidence [of a motivation to combine]'" and thus do not support rejections based on combining references. *In re Dembiczak*, 175 F.3d at 999, 50 USPQ2d at 1617. Without objective evidence of a motivation to combine, the obviousness rejection is the "essence of hindsight" reconstruction, the very "syndrome" that the requirement for such evidence is designed to combat, and without which the obvious rejection is insufficient as a matter of law. *Id.* at 999, 50 USPQ2d at 1617-18.

1. There Is No Objective Evidence Of A Motivation To Modify Kashi In View Of Sardana

There is no showing of any objective teaching to modify Kashi in view of Sardana. With respect to independent claims 1, 32, 55, 68, 69, and 76, the Office Action merely states "it would have been obvious to one of ordinary skill in the art at the time [that] the invention was made to apply a method and system for dividing a reservation channel into a plurality of mini-slots wherein each mini-slot assigned to each mobile unit and the number of mini-slots are equal to the number of mobile units as disclosed by Sardana's system and method into Kashi's system and method" as the "motivation would have been to reduce [collisions] and improve the throughput of the system." This broad, conclusory statement is not sufficient, under the controlling authorities set forth above, to justify combining the teachings of these two references. There is no showing that either of the applied references, or any other prior art, even remotely suggests such a combination/modification.

2. The Examiner's Hypothesized Motivation To Combine Is Fundamentally Unsound

The Examiner's hypothesized motivation to combine the cited references in order "to reduce [collisions] and improve the throughput of the system" is fundamentally unsound.

Particularly, addition of Sardana's reservation protocol would not reduce the number collisions, *i.e.*, interference, of Kashi's system as its inclusion would be redundant to the priority/polling allocation method already provided for by Kashi. *See*, Argument § A.4, *supra*. Kashi discloses the use of a complicated priority algorithm to allocate transmission time periods, during which a particular station can transmit under optimal conditions information without interference from other stations. Therefore, inclusion of Sardana's reservation protocol would not reduce transmission interference as Kashi has already eliminated such. More importantly, incorporating a reservation protocol into Kashi would have a negative impact on the overall throughput of the system. Sardana requires that the base station have a global queue and extra processing capability in order to handle the reservation requests and allocation of transmission time intervals. Sardana, col. 3, ll. 13-17. Each and every non-base station receives request information from the other stations and maintains its own global queue. *Id.*, col. 3, ll. 17-24. Thus, precious time for transmitting information is wasted as every station must process additional overhead, or out-of-band signaling, in order to eventually communicate, thereby wasting time that could be allocated for the normal transmission interval.[1] Thus, the proposed inclusion of Sardana's reservation protocol would reduce (as opposed to increase or improve) the throughput of the Kashi's system.

3. Kashi Clearly Teaches Away From The Inclusion Of Sardana's Reservation Protocol

Kashi states that channel time is a critical, valuable, and scarce resource in a radio

[1] Out-of-band signaling is used as short-hand for the signals needed to set-up a communication of in-band information. In a voice telephone context, the out-of-band signals are those that set-up the call, *e.g.*, dial tones and network switching signals, and the in-band signals are those reflected the information in the communication, *e.g.*, the voice data of the calling parties.

communications system. Kashi, col. 1, ll. 55-61. Where there are many remote transmitting stations in a single system, *large amounts of overhead transmissions should be avoided*. *Id.* at col. 1, ll. 62-67 (Emphasis added.). The inclusion of Sardana's reservation protocol in Kashi would create additional overhead and decrease communication channel time. *See*, Argument § B.2, *supra*. These are two results that Kashi clearly attempts to avoid.

4. The Inclusion Of Sardana's Reservation Protocol Would Change The Principle Of Operation Of Kashi

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. M.P.E.P. § 2143.02 (citing *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)).

Kashi discloses the use of a complicated priority algorithm to allocate transmission time periods to remote stations. *See*, Argument § A.4, *supra*. These transmission time periods are at least dependent on the priority calculations. Sardana discloses the use of a reservation protocol to allocate transmission time periods to remote stations. *See*, Argument § A.5, *supra*. Inclusion of Sardana's reservation protocol would fundamentally alter the principle (and only) way Kashi's system allocates transmission time (bandwidth). Appellant submits that a communication system can either implement Kashi's priority algorithm or Sardana's reservation protocol to allocate station transmission time, but not both. Therefore, modifying Kashi's system to include Sardana's reservation protocol would change the principle of operation of Kashi.

C. The Modification Of Kashi In View Of Sardana Fails To Disclose All Limitations Recited In Independent Claims 1, 32, 55, 68, 69, And 76, And All Claims Dependent Therefrom

In order to establish a *prima facie* case of obviousness the prior art reference (or references when combined) must teach or suggest all the claim limitations. M.P.E.P. § 2143

(citations omitted).

Kashi, either taken alone or in combination with any of the secondary references including Sardana, does not teach or suggest the claim limitation(s) of "a plurality of remote stations, wherein each remote stations . . . monitors a reverse channel within an assigned period of time in a clear channel assessment interval, and provides a reverse channel signal when said reverse channel is clear within said assigned period of time, wherein said clear channel assessment interval is partitioned into periods of time and each of said periods of time is assigned to one of said plurality of remote stations" as recited or similarly recited in independent claims 1, 32, 55, 68, 69, and 76. Emphasis added. Particularly, Sardana does not teach or suggest this limitation as the Office Action apparently contends. Sardana discloses a reservation protocol having a number of reservation minislots, each of which is assigned to a particular station of a network. Sardana, col. 3, ll. 5-10. Each station is required to transmit a reservation request during its allocated minislot in a reservation interval in order to reserve time for the transmission of information during a communication interval. *Id.*, col. 3, ll. 11-13. Sardana's *reservation interval* is not equivalent nor even similar to the "*clear channel assessment interval*" as claimed. Specifically, the clear channel assessment interval as claimed comprises assigned time periods, during which each remote stations exclusively *monitors* (listens to) a reverse channel to determine if any other remote stations are transmitting. For example, claim 1 recites "each remote station . . . monitors a reverse channel within an assigned period of time in a clear channel assessment interval . . . ." To the contrary, Sardana's reservation interval allocates an assigned time therein, during which a remote station *transmits* a reservation request to reserve a later time for transmitting information. Hence, the remote stations in Sardana are all transmitting and receiving reservation requests, which are brokered by the base station, for the

overall system to determine a *later* time when each remote station can transmit rather than having all the remote stations simply monitor the channel at an assigned period time to determine whether the channel is *currently* free for a single remote station to transmit. Thus, Sardana's reservation interval is fundamentally different than the clear channel assessment interval as claimed and as such fails to cure the deficiency in Kashi acknowledged by the Office Action. Because the cited references, taken alone or in combination with one another, do not disclose all the limitations recited in independent claims 1, 32, 55, 68, 69, and 76, the Office Action has failed to establish a *prima facie* case of obviousness and the instant rejection of these claims and all claims dependent therefrom is unsustainable.

D. The Further Modification Based On Heidi As Applied To Claims 4, 8-18, 23, 26-31, 36-39, 41-45, 49-54, 58-60, 65, 67, 75, And 81 Is Improper

The alleged modification of Kashi and Sardana, in further view of Heidi with respect to claims 4, 8-18, 23, 26-31, 36-39, 41-45, 49-54, 58-60, 65, 67, 75, and 81 is improper at least because the underlying modification of Kashi to include Sardana's reservation protocol is improper. *See*, Argument § B.2, *supra*. In addition, the Examiner's burden to establish a *prima facie* case of obviousness has not been met in the Office Action as it fails to provide objective evidence of a motivation to incorporate the alleged teaching of Heidi or any of the Official Notices relied upon into Kashi's system as already modified in view of Sardana.

1. The Use Of Official Notice Is Improper

At the outset, Appellant notes the impropriety of relying on Official Notice for entire limitations of claims. If, as the Office Action alleges, these limitations are well known, the Office Action should recite a reference for the teaching and provide something, other than hindsight, to support the allegation that modification of Kashi in view of Sardana, and further in view of the various Official Notices taken is suggested by the prior art as a whole.

2. Data Packets Include "Digitized Voice And Data"

With respect to claims 4 and 41, the Office Action relies on Official Notice to provide a teaching for a "data packet including digitized voice and data" to combine into Kashi's system as modified in view of Sardana.

Appellant submits that there is no showing of any objective teaching to make such a combination. The Office Action merely states "it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the data packets including the digitized voice and data for transmitting between the base and remote station" as the "motivation would have been to integrate a wireless network with a wireline network such as Internet and turn the Internet into a reliable telecommunication network." This broad, conclusory statement is not sufficient, under the controlling authorities set forth above, to justify combining the teachings of these two references and the Official Notice. There is no showing that either of the applied references, or any other prior art, even remotely suggests such a combination.

3. "Broadcast Address," "Semi-Broadcast Address," Or An "Internet Protocol Address"

With respect to claims 8-11, 36, 37, and 60, the Office Action acknowledges that Kashi in view of Sardana does not teach or suggest using a "broadcast," "semi-broadcast," or "Internet Protocol" address as claimed. In an attempt to cure these deficiencies, the Office Action relies on Official Notice that "providing the address for a device" is well known and expected in the art.

Even assuming, *arguendo*, that "providing the address for a device" is well known and expected, this alleged teaching fails to teach or suggest the missing claim limitations. Referring to page 6, lines 7-18, of the 09/482,054 specification, base station 102 can dynamically communicate with remote stations 104 in a number of different addressing schemes. For

example, for each forward channel 106, a data packet can be destined for a specific remote station 104, all remote stations 104 (via a broadcast address), or a subset (pre-assigned group) of all remote stations 104 (via a semi-broadcast address). Referring to page 6, lines 19-22, of Appellant's specification, the invention can be readily mapped into higher level protocols, such as Internet Protocol (IP). In such an embodiment, the address of each remote station 104 can correspond to the IP address of that remote station 104. The alleged teaching of "providing the address for a device" is not only ambiguous, but also clearly fails to teach or suggest the use of a broadcast, semi-broadcast, or Internet Protocol address as claimed.

4. Set Of Addresses To Form Zone Or Internet Sub-Network

With respect to claims 12-14, 38, 39, 58, and 59, the Office Action relies on Official Notice to provide a teaching for "assigning a different address to each remote to different zone having an Internet subnetwork" to combine into Kashi's system as already modified in view of Sardana.

Appellant submits that there is no showing of any objective teaching to make such a combination. The Office Action merely states it would have been obvious to one of ordinary skill in the art at the time the invention was made "to assign a different address to each remote to different zone having an Internet subnetwork" as the "motivation would have been to easily locate the remote station in the zones." This broad, conclusory statement is not sufficient, under the controlling authorities set forth above, to justify combining the teachings of these two references and the Official Notice taken. There is no showing that either of the applied references, or any other prior art, even remotely suggests such a combination.

5. "Remote Stations Monitoring Said Clear Assessment Channel Interval During Said Predetermined Dwell Times"

With respect to claims 15-18 and 42-45, the Office Action relies on Heidi to provide an

alleged teaching of "a wireless system includes a base station and remote stations including a forward channel 'Fig 6, downward period, broadcast period', a reservation channel 'upward period' and clear assessment channel 'request period'" to combine into Kashi's system as modified in view of Sardana. Alternatively, the Office Action contends that "[e]ven without, Heidi's teaching, one of ordinary skill in the art would know how to divide a frame into forward, a [reverse] channel and clear assessment channel interval into a time slot for assigning to the remote station" as this "method is well known in the art."

This rejection fails to satisfy the Examiner's burden to establish a *prima facie* case of obviousness as there is no objective evidence of a motivation to modify provided that would lead one of ordinary skill in the art to include Heidi's reservation period into Kashi's system as modified by Sardana. Appellant submits that Kashi clearly teaches away from the inclusion of a reservation period. Moreover, the inclusion of Heidi's reservation period would change the principle of operation of Kashi and is redundant in view of Sardana's reservation protocol.

a) There Is No Objective Evidence Of A Motivation To Modify Kashi In Further View Of Heidi

Appellant submits that there is no showing of any objective teaching to make such a combination. The Office Action merely states it would have been obvious to one of ordinary skill in the art at the time the invention was made "to apply a superframe which includes a downward period, upward period and request period for accessing upward period for transmitting a data packet as disclosed [in] Heidi into Kashi's and Sardana's wireless communication system" since "Kashi discloses a plurality of time slots for remote station responding to global request." This broad, conclusory statement is not sufficient, under the controlling authorities set forth above, to justify combining the teachings of these three references. There is no showing that either of the applied references, or any other prior art, even

remotely suggests such a combination.

b) Kashi Clearly Teaches Away From The Inclusion Of Heidi's Reservation Request Period

Referring to Fig. 6, Heidi teaches that each remote station 14 has a preassigned time slot TS (such as TS_1 54, TS_2 55, or TS_3 56 for the first three stations) in the request period 50 to issue a reserved slot request RR frame (*e.g.*, RR_1 54 or RR_3 56 for the first or third station, respectively) if it has data to transmit on the channel. Heidi at col. 9, ll. 15-34. After every station has been given a chance to make a reservation, the central station 12 enters an explicit polling period ("upward period" in Fig. 6) of data period 51 in which the remote stations 14 that have reserved transmission time are individually polled by the central station 12 via a poll frame P (*e.g.*, P_1 60 and P_3 64 for the first or third station, respectively). *Id.* at col. 9, l. 65 to col. 10, l. 9. Immediately upon receiving a poll frame that station responds with its data packet DATA (e.g., $DATA_1$ 62 or $DATA_2$ 66 for the first or third station, respectively). *Id.*

Heidi's reservation and polling format requires that the central station 12 broker the transmission times of all remote stations 14, thereby wasting precious time that could be allotted for in-band communication as additional overhead, or out-of-band signaling, must be processed in order to communicate (*i.e.*, set-up the normal transmission). This problem is even more severe in Heidi than that discussed with respect to Sardana as not only is time wasted by having the remote stations reserve transmission time, but additional time is wasted by having the central station poll the remote stations prior to the remote stations transmitting the in-band information.

As previously noted, Kashi states that channel time is a critical, valuable, and scarce resource in a radio communications system. Kashi, col. 1, ll. 55-61. Where there are many remote transmitting stations in a single system, *large amounts of overhead transmissions should be avoided*. *Id.* at col. 1, ll. 62-67 (Emphasis added.). Appellant submits that the inclusion of a

reservation period as taught by Heidi into Kashi creates additional overhead and decreases communication channel time. These are two results that Kashi clearly attempts to avoid.

c) The Inclusion Of Heidi's Reservation Period Would Change The Principle Of Operation Of Kashi

Kashi discloses the use of a complicated priority algorithm to allocate transmission time periods to remote stations. *See*, Argument § A.4, *supra*. These transmission time periods are at least dependent on the priority calculations. Heidi discloses the use of a reservation period to allocate transmission time periods to remote stations. *See*, Argument § A.6, *supra*. Inclusion of Heidi's reservation protocol would fundamentally alter the principle (and only) way Kashi's system allocates transmission time (bandwidth). Appellant submits that a communication system can either implement Kashi's priority algorithm or Heidi's reservation period to allocate station transmission time, but not both. Therefore, modifying Kashi's system to include Heidi's reservation protocol would change the principle of operation of Kashi.

d) Heidi's Reservation Period Is Redundant In View Of Sardana's Reservation Protocol

Sardana discloses the use of a reservation protocol to allocate transmission time periods to remote stations. *See*, Argument § A.5, *supra*. Heidi discloses the use of a reservation request period to allocate transmission time periods to remote stations. *See*, Argument § B.4, *supra*. Appellant submits that each of these two reservation techniques is redundant to the other and therefore, one of ordinary skill in the art would not be motivated to include Heidi's reservation period in the hypothesized Kashi and Sardana combination.

e) The Modification Of Kashi And Sardana In Further In View Of Heidi Fails To Disclose All Claim Limitations

The Office Action's reliance on a reservation period (as taught by both Heidi and

Sardana) does not supply the claim limitations admittedly not taught by Kashi. Particularly, Appellant submits that Kashi, either taken alone or in combination with any of the secondary references including Heidi, does not disclose or suggest the claim limitation(s) of "wherein said assigned period of time [within said clear assessment channel interval] is a predetermined dwell time and wherein each of said remote stations monitor said clear assessment channel interval during said predetermined dwell time" as recited or similarly recited in dependent claims 15-18 and 42-45. Emphasis added. Heidi does not teach or suggest this limitation as the Office Action apparently contends. Heidi discloses a reservation request period 50 having a number of preassigned time slots TS (such as TS_1 54, TS_2 55, or TS_3 56 for the first three stations) for the remote stations to request transmission time. Heidi at col. 9, ll. 15-34. Heidi's *reservation request period* is not equivalent nor even similar to the "*clear channel assessment interval*" as claimed. Specifically, the clear channel assessment interval as claimed comprises assigned time periods, during which each remote stations exclusively *monitors* (listens to) a reverse channel to determine if any other remote stations are transmitting. For example, claim 1 recites "each remote station . . . monitors a reverse channel within an assigned period of time in a clear channel assessment interval . . . ." To the contrary, Heidi's reservation period allocates an assigned time therein, during which a remote station *transmits* a reservation request to reserve a later time for transmitting information. Hence, the remote stations in Heidi are all transmitting reservation requests, which are brokered by the central station, for the overall system to determine a *later* time when each remote station can transmit rather than having all the remote stations simply monitor the channel at an assigned period time to determine whether the channel is *currently* free for a single remote station to transmit. Thus, Appellant submits that Heidi's reservation period is fundamentally different than the clear channel assessment interval as

claimed and as such fails to cure the deficiency in Kashi acknowledged by the Office Action.

f) Dividing "A Frame Into Forward, A Reverse Channel And Clear Assessment Channel Interval . . ." Doesn't Provide Sufficient Basis

The Office Action's contention that "[e]ven without, Heidi's teaching, one of ordinary skill in the art would know how to divide a frame into forward, a [reverse] channel and clear assessment channel interval into a time slot for assigning to the remote station" as this "method is well known in the art" is not only ambiguous, but fails to provide a sufficient basis for sustaining the instant rejection.

At the outset, Appellant notes the impropriety of relying on this statement, which is seemingly the Examiner's own declaration, for entire limitations of claims. If, as the Office Action alleges, these claim limitations are well known, the Office Action should recite a reference and provide something, other than hindsight, to support the allegation that modification of the base reference in view of this statement is suggested by the prior art as a whole. In the event that this statement is indeed the Examiner's own declaration, Appellant respectfully requests a proper affidavit to support such.

Appellant submits that "[dividing] a frame into forward, a [reverse] channel and clear assessment channel interval into a time slot for assigning to the remote station" is ambiguous and the logic of such is not readily apparent. Particularly, it is unclear as to what teaching(s) this statement is attempting to show as well known in the art. For example, is it the cited frame or the clear assessment channel interval that is allegedly being divided? Moreover, how can a frame or clear assessment channel interval be divided into a (*i.e.*, one) time slot?

Even assuming, *arguendo*, that the reliance on this statement is proper, it still fails to provide the missing limitations of Kashi and the secondary references. Particularly, Kashi, either

taken alone or in combination with this statement, does not teach or suggest "wherein said assigned period of time [within said clear assessment channel interval] is a predetermined dwell time and wherein each of said remote stations monitor said clear assessment channel interval during said predetermined dwell time" as recited or similarly recited in dependent claims 15-18 and 42-45.

6. Transmitting A Control Packet For Synchronizing The Base Station And Remote Station

With respect to claims 30, 31, 53, and 54, the Office Action relies on Official Notice to provide a teaching for "assigning a different address to each remote to different zone having an Internet subnetwork" to satisfy the limitation of "transmitting a control packet for synchronizing the base station and remote stations" admittedly missing from Kashi's system as modified in view of Sardana.

Appellant submits that the basis for this rejection is clearly unsound as the Office Action is relying on an alleged teaching of "assigning a different address" to provide the recited limitation concerning "transmitting a control packet for synchronizing the base station and the remote stations." Particularly, the assignment of an address to a remote station has nothing to do with synchronizing a remote station with the base station. Thus, the Office Action is relying on Official Notice that clearly does not relate to the instant limitations.

Even assuming, *arguendo*, that this alleged teaching is related to the instant claims, Appellant submits that there is no showing of any objective teaching to make such a combination. The Office Action merely states it would have been obvious to one of ordinary skill in the art at the time the invention was made "to assign a different address to each remote to different zone having an Internet subnetwork." This broad, conclusory statement is not sufficient, under the controlling authorities set forth above, to justify combining the teachings of

the two references and the Official Notice. There is no showing that either of the applied references, or any other prior art, even remotely suggests such a combination.

7. Half/Full Duplex And Electrical Or Optical Medium

With respect to claims 26-29, 51, 52, 67, 75, and 81, the Office Action relies on Official Notice to provide a teaching for "half or full duplex" admittedly missing from Kashi's system as modified in view of Sardana.

Appellant submits that there is no showing of any objective teaching to make such a combination. The Office Action provides no statement, whatsoever, to justify combining the alleged teachings and is not sufficient, under the controlling authorities set forth above. There is no showing that either of the applied references, or any other prior art, even remotely suggests such a combination.

8. IPMA Environment

With respect to claims 23, 49, and 65, the Office Action admits that Kashi does not disclose a system being used in an IPMA environment and therefore relies on Official Notice to provide a teaching for "using Internet protocol in a wireless system" to apparently combine[2] into Kashi.

Appellant submits that there is no showing of any objective teaching to make such a combination. The Office Action provides no statement, whatsoever, to justify combining the alleged teachings and is not sufficient, under the controlling authorities set forth above. There is no showing that either of the applied references, or any other prior art, even remotely suggests such a combination.

[2] The Office Action fails to identify an explicit combination or modification of Kashi in view of Sardana.

Even assuming, *arguendo*, that the combination is proper, Kashi, either taken alone or in combination with the secondary teachings, fails to teach or suggest "wherein the system is an Internet Protocol Multiple Access environment" as claimed. *See*, Argument § D.3, *supra*.

E. The Further Modification Based On Kay As Applied To Claims 20-22, 47, 48, And 64 Is Improper

The alleged modification of Kashi and Sardana, in further view of Heidi with respect to claims 20-22, 47, 48, and 64 is improper at least because the underlying modification of Kashi to include Sardana's reservation protocol is improper. *See*, Argument § B.2, *supra*. This rejection further fails to satisfy the Examiner's burden to establish a *prima facie* case of obviousness as there is no objective evidence of a motivation to modify provided that would lead one of ordinary skill in the art to include Kay's guard times into Kashi's system as modified by Sardana.

1. There Is No Objective Evidence Of A Motivation To Modify Kashi In Further View Of Kay

Appellant submits that there is no showing of any objective teaching to make such a combination. The Office Action merely states it would have been obvious to one of ordinary skill in the art at the time the invention was made "to apply a guard time in the position such as beginning or ending of forward, [reverse] and clear assessment interval as disclosed by Kay into Kashi's and Sardana's wireless communication." This broad, conclusory statement is not sufficient, under the controlling authorities set forth above, to justify combining the teachings of these three references. There is no showing that either of the applied references, or any other prior art, even remotely suggests such a combination.

IX. CONCLUSION

In view of the foregoing, appellant respectfully requests that the Board reverse the prior art rejections set forth in the Office Action, and allow all of the pending claims.

Respectfully submitted,

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APPENDIX A - Pending Claims

CLAIMS

1. A system, comprising:

a base station that provides a forward channel signal; and

a plurality of remote stations, wherein each remote station monitors said forward channel signal, monitors a reverse channel within an assigned period of time in a clear channel assessment interval, and provides a reverse channel signal when said reverse channel is clear within said assigned period of time, wherein said clear channel assessment interval is partitioned into periods of time and each of said periods of time is assigned to one of said plurality of remote stations.

2. The system of claim 1, wherein said base station receives information encoded on said reverse channel signal and wherein each remote station receives information encoded on said forward channel signal.

3. The system of claim 1, wherein said forward channel signal and said reverse channel signal include data packets.

4. The system of claim 3, wherein said data packets include digitized voice and data.

5. The system of claim 1, wherein said forward channel includes an address.

6. The system of claim 5, wherein each remote station is assigned a unique remote station

address and wherein each remote station accepts information encoded on said forward channel signal when said address of said forward channel signal matches said assigned unique remote station address.

7. The system of claim 5, wherein a remote station address is assigned a priori to said remote station.

8. The system of claim 5, wherein said address is a broadcast address.

9. The system of claim 5, wherein said address is a semi-broadcast address.

10. The system of claim 5, wherein said address corresponds with an Internet Protocol address.

11. The system of claim 5, wherein said address is an Internet Protocol address.

12. The system of claim 5, wherein one remote station is assigned a first remote station address from a first set of addresses and a second remote station is assigned a second remote station address from a second set of addresses.

13. The system of claim 12, wherein said first set of addresses form a first zone and said second set of addresses form a second zone.

14. The system of claim 5, wherein each remote station is assigned a remote station address from a set of addresses and said set of addresses form an Internet sub-network.

15. The system of claim 1, wherein said assigned period of time is a predetermined dwell time and wherein each of said remote stations monitor said clear assessment channel interval during said predetermined dwell time.

16. The system of claim 15, wherein each of said dwell times is of equal duration.

17. The system of claim 15, wherein each remote station is dynamically assigned a dwell time.

18. The system of claim 17, wherein said dwell times are assigned to said plurality of remote stations in a round robin fashion.

19. The system of claim 1, wherein said forward channel signal is provided during a predetermined forward channel interval and said reverse channel signal is provided during a predetermined reverse channel interval.

20. The system of claim 19, further comprising guard times among said forward channel interval, said reverse channel interval, and said clear channel assessment interval.

21. The system of claim 20, wherein said guard times are positioned at the beginning and end

of said forward channel interval, said reverse channel interval, and said clear channel assessment interval.

22. The system of claim 20, wherein said guard times are positioned at the beginning and end of said forward channel interval and at the end of said reverse channel interval and said clear channel assessment interval.

23. The system of claim 1, wherein the system is an Internet Protocol Multiple Access environment.

24. The system of claim 1, wherein said forward channel signal and said reverse channel signal are wireless signals.

25. The system of claim 22, wherein said forward channel signal and said reverse channel signal are modulated signals each having carrier signals with a frequency of approximately 2 GHz.

26. The system of claim 1, wherein said forward channel signal and said reverse channel signal are each electrical signals transmitted in an electrical medium.

27. The system of claim 1, wherein said forward channel signal and said reverse channel signal are each optical signals transmitted in an optical medium.

28. The system of claim 1, wherein said forward channel signal and reverse channel signal are half-duplex signals.

29. The system of claim 1, wherein said forward channel signal and reverse channel signal are full-duplex signals.

30. The system of claim 1, wherein said base station synchronizes with a portion of said plurality of remote stations.

31. The system of claim 28, wherein said base station uses broadcast control packets for synchronization.

32. A method for a single-point to a fixed multi-point system having a base station and a plurality of remote stations, the method comprising the step of:

transmitting from the base station a forward channel signal;

monitoring for said forward channel signal at each of the plurality of remote stations; and

monitoring a reverse channel at each of the plurality of remote stations, wherein each of the plurality of remote stations monitors said reverse channel within an assigned period of time in a clear channel assessment interval, wherein said clear channel assessment interval is partitioned into periods of time and each of said periods of time is assigned to one of said plurality of remote stations,

if said reverse channel is clear during said assigned period of time associated with one of the plurality of remote stations and said one of the plurality remote stations has information to

send to the base station, transmitting a reverse channel signal from said one of the plurality of remote stations.

33. The method of claim 30, wherein said forward channel signal has data information and address information.

34. The method of claim 31, further comprising the steps of assigning a unique remote station address to each of the plurality of remote stations and accepting said data information at one of the plurality of remote stations when said address matches an unique address of said one of the plurality of remote stations.

35. The method of claim 34, wherein said step of assigning unique remote addresses is done a priori.

36. The method of claim 31, wherein said address information is a broadcast address.

37. The method of claim 31, wherein said address information is an Internet Protocol address.

38. The method of claim 31, further comprising the steps of assigning a first remote station address from a first set of addresses to one of the plurality of remote stations and assigning a second remote station address from a second set of addresses to another of the plurality of remote stations.

39. The method of claim 38, wherein said first set of addresses form a first zone and said second set of addresses form a second zone.

40. The method of claim 31, wherein said forward channel signal and said reverse channel signal include data packets.

41. The method of claim 38, wherein said data packets include digitized voice and data.

42. The method of claim 32, wherein each assigned period of time is a predetermined dwell time.

43. The method of claim 40, wherein each of said dwell times is of equal duration.

44. The method of claim 40, further comprising the step of dynamically assigning dwell times to each of the plurality of remote stations.

45. The method of claim 42, wherein said dwell times are assigned in a round robin fashion.

46. The method of claim 30, wherein said forward channel signal is provided during a predetermined forward channel interval and said reverse channel signal is provided during a predetermined reverse channel interval.

47. The method of claim 44, further comprising the step of providing guard times among said forward channel interval, said reverse channel interval, and said clear channel assessment interval.

48. The method of claim 45, wherein said guard times are positioned at the beginning and end of said forward channel interval, said reverse channel interval, and said clear channel assessment interval.

49. The method of claim 30, wherein the system is used in an Internet Protocol Multiple Access environment.

50. The method of claim 30, wherein said forward channel signal and said reverse channel signal are wireless signals.

51. The method of claim 30, wherein said forward channel signal and reverse channel signal are half-duplex signals.

52. The method of claim 30, wherein said forward channel signal and reverse channel signal are full-duplex signals.

53. The method of claim 30, further comprising the step of synchronizing the base station with the plurality of remote stations.

54. The method of claim 51, wherein broadcast control packets are used for synchronization.

55. A single-point to a fixed multi-point system, comprising:

a base station for transmitting a forward channel signal; and

a plurality of remote stations, each remote station monitoring said forward channel signal, monitoring a reverse channel within an assigned dwell time in a clear channel assessment interval, and transmitting a reverse channel signal after detecting that said reverse channel is clear, wherein said clear channel assessment interval is partitioned into dwell times, each dwell time assigned to one of said plurality of remote stations, said forward channel signal provided during a predetermined forward channel interval, and said reverse channel signal provided during a predetermined reverse channel interval.

56. The system of claim 53, wherein said forward channel signal has data information and address information.

57. The system of claim 56, wherein each remote station has a unique remote station address and each remote station accepts said data information when said address information matches said unique address.

58. The system of claim 56, wherein one remote station has a first remote station address from a first set of addresses and a second remote station has a second remote station address from a second set of addresses.

59. The system of claim 58, wherein said first set of addresses form a first zone and said second set of addresses forms a second zone.

60. The system of claim 54, wherein said address information is a broadcast address.

61. The system of claim 54, wherein said forward channel signal and said reverse channel signal include data packets.

64. The system of claim 55, further including guard times among said forward channel interval, said reverse channel interval, and said clear channel assessment interval.

65. The system of claim 62, wherein the system is used in an Internet Protocol Multiple Access environment.

66. The system of claim 53, wherein said forward channel signal and said reverse channel signal are wireless signals.

67. The system of claim 53, wherein said forward channel signal and reverse channel signal are full-duplex signals.

68. A method of communicating with a station, comprising the steps of:

monitoring a forward channel;

monitoring a reverse channel within an assigned predetermined dwell time within a clear

channel assessment interval, wherein said clear channel assessment interval is partitioned into a number of dwell times, each dwell time assigned to one of a number of remote stations, said number of dwell times being equal to said number of remote stations; and

transmitting a reverse channel signal after detecting that said reverse channel is clear during said predetermined dwell time, wherein said forward channel signal is provided during a predetermined forward channel interval and said reverse channel signal is provided during a predetermined reverse channel interval.

69. A station comprising:

a monitor for monitoring a forward channel signal and monitoring a reverse channel within a clear channel assessment interval, wherein said clear channel assessment interval is partitioned into at least two dwell times, one of said dwell times is assigned to said station with a remainder of said dwell times assigned to other stations, said monitor monitoring said reverse channel only within said dwell time assigned to said station; and

a transmitter for transmitting a reverse channel signal after said monitor detects that said reverse channel is clear during said dwell time, wherein said forward channel signal is provided during a predetermined forward channel interval and said reverse channel signal is provided during a predetermined reverse channel interval.

70. The station of claim 69, wherein said forward channel signal has data information and address information.

71. The station of claim 70, further comprising:

a unique station address, wherein said station accepts said data information when said address information matches said unique station address.

74. The station of claim 69, wherein said forward channel signal and said reverse channel signal are wireless signals.

75. The station of claim 69, wherein said forward channel signal and reverse channel signal are full-duplex signals.

76. A base station comprising:

a transmitter for transmitting a forward channel signal; and

a receiver for receiving a reverse channel signal from one of a number of remote stations after said remote station detects that a reverse channel is clear during a dwell time assigned to said remote station in a clear channel assessment interval, wherein said clear channel assessment interval is partitioned into a number of dwell times, said number of dwell times equal to said number of remote stations, each dwell time assigned to one remote station, said forward channel signal provided during a predetermined forward channel interval, said reverse channel signal provided during a predetermined reverse channel interval, and said clear channel assessment interval occupies a time between said forward and reverse channel intervals.

77. The station of claim 76, wherein said forward channel signal has data information and remote station address information.

80. The station of claim 76, wherein said forward channel signal and said reverse channel signal are wireless signals.

81. The station of claim 76, wherein said forward channel signal and reverse channel signal are full-duplex signals.